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APPLICATION NO.	- F	ILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
08/770,792		12/19/1996	JUN KOYAMA	07977/105001	3931	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)
	08/770,792	KOYAMA ET AL.
Office Action Summary	Examiner	Art Unit
	Julie-Huyen L. Ngo	2871
The MAILING DATE of this communication ap Period for Reply	opears on the cover sheet wit	h the correspondence address
A SHORTENED STATUTORY PERIOD FOR REP THE MAILING DATE OF THIS COMMUNICATION - Extensions of time may be available under the provisions of 37 CFR 1 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a re - If NO period for reply is specified above, the maximum statutory period - Failure to reply within the set or extended period for reply will, by statu Any reply received by the Office later than three months after the maili earned patent term adjustment. See 37 CFR 1.704(b).	136(a). In no event, however, may a re ply within the statutory minimum of thirty d will apply and will expire SIX (6) MON te, cause the application to become AB	ply be timely filed (30) days will be considered timely. FHS from the mailing date of this communication. ANDONED (35 U.S.C. § 133).
Status		
 1) Responsive to communication(s) filed on 25. 2a) This action is FINAL. 2b) Th 3) Since this application is in condition for allow closed in accordance with the practice under 	is action is non-final. ance except for formal matte	
Disposition of Claims		
4) ☐ Claim(s) 4,6,13,14,17,21-25,30,31,35,36,40-4a) Of the above claim(s) is/are withdrest	awn from consideration. 42,44,61-64 and 69-72 is/ar	
9)☐ The specification is objected to by the Examir	ner.	
	ccepted or b) objected to b	
Applicant may not request that any objection to the Replacement drawing sheet(s) including the corre	• • • • • • • • • • • • • • • • • • • •	
11) The oath or declaration is objected to by the E	•	
Priority under 35 U.S.C. § 119		
12) Acknowledgment is made of a claim for foreign a) All b) Some * c) None of: 1. Certified copies of the priority document 2. Certified copies of the priority document 3. Copies of the certified copies of the priority application from the International Bure. * See the attached detailed Office action for a list	nts have been received. nts have been received in Apority documents have been au (PCT Rule 17.2(a)).	oplication No received in this National Stage
Attachment(s)	A) ☐ Interview S	ummary (PTO-413)
 Notice of References Cited (PTO-892) Notice of Draftsperson's Patent Drawing Review (PTO-948) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08 Paper No(s)/Mail Date 8/25/04. 	Paper No(s)/Mail Date formal Patent Application (PTO-152)

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DETAILED ACTION

Response to Reconsideration

Applicant's request for reconsideration of the finality of the rejection of the last Office action mailed on March 25, 2004 is persuasive and, therefore, the finality of that action is withdrawn.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features recited in claims 61-64 regarding "at least one liquid crystal panel having at least a first side, a second side, a third side and a fourth side ... a nonconductive or a weakly conductive material is applied to at least the first side, the second side, and the third side ... wherein said nonconductive material is not applied to the fourth side of said liquid crystal panel" must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional

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replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Amendment

The amendment filed on August 25, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added matter, which is not supported by the original disclosure, is as follows:

In claims 61-64, the recitation calling for "at least one liquid crystal panel having at least a first side, a second side, a third side and a fourth side ... a nonconductive or a weakly conductive material is applied to at least the first side, the second side, and the third side ... wherein said nonconductive material is not applied to the fourth side of said liquid crystal panel" is not supported by the original disclosure. According to the original specification and drawings (figures 1 and 9), the nonconductive or weakly conductive resin 105 or 906 is applied to the cut surfaces/side edges of substrates 101&102 or 904&905, respectively, in only one LC panel.

Applicant is required to cancel the new matter in the reply to this Office Action.

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Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 61-64 and 69-72 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 61-64, the amended language calling for "at least one liquid crystal panel having at least a first side, a second side, a third side and a fourth side a nonconductive or a weakly conductive material is applied to at least the first side, the second side, and the third side ...". The word "at least" implies that there are more than one liquid crystal (LC) panels, and each LC panel having more than four sides; however, there is no sufficient support in the original disclosure for more than one LC panels and for the nonconductive or weakly conductive material that is applied to at least the first side, the second side, and the third side of the LC panel. These limitations constitute new subject matter.

Applicant is to note that the specification (page 9, lines 18-25) disclose that:

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"After the completion of the sealing, the glass substrates, or the TFT substrate and counter substrate, are cut along the common planes lying in three directions (top side, bottom side, and right side of the display device shown in Fig. 2).

Subsequently, a nonconductive or weakly conductive resin is applied to the cut surfaces. For example, an epoxy resin is applied. As a result of the manufacturing steps described thus far the liquid crystal display shown in Fig. 1 is completed."

The above description indicates that the substrates are cut along the planes lying in the three directions of the top side, bottom side, and right side of the display device NOT the three sides of the LC panel, and the cut surfaces are the side/edge surfaces of the substrates 2 and TFT 101 as shown in figure 1, which shows that the nonconductive material 105 is applied to the cut side edges of these substrates NOT the three sides of the LC panel.

Claims 69-72 are rejected as bearing the defects of the claims from which they depend.

For examination purpose, claims 61-64 would be treated according to what originally disclosed as set forth above.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 42 and 69-72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 42 recites the limitation " <u>said cut side edges</u> to <u>which said</u>

<u>nonconductive or weakly conductive material</u> is applied or adhesively bonded are

parallel or vertical to a direction of array of said pixel TFTs." There is insufficient

antecedent basis for these limitations in the claim. Also, it is unclear from the

language of the claim of which direction is the direction of array of said pixel TFTs,

and how the cut side edges be parallel or vertical to the direction of array of said

pixel TFTs??

Claims 69-72 recite the limitation "said side edge of said TFT substrate" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In claims 61-64, it is unclear from the language of the claims which side is the "fourth side" of the LC panel that the nonconductive material or weakly conductive resin is not applied to. Also, it is unclear which sides are the "first, second and third sides" of the LC panel that the nonconductive material or weakly conductive resin is applied to.

Claims 69-72 are rejected as bearing the defects of the claims from which they depend.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4, 6, 13, 14, 17, 21-25, 30, 31, 35, 36, 40-42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawatsubashi et al. (U.S. 5,148,301).

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Since the method claims are just the steps of forming the elements of the device, the method claims would have been obvious in view of the device.

Therefore, the method claims are treated below with the corresponding device claims.

Sawatsubashi et al. disclose (Cols. 4-6 and Figures 3-5) an active matrix liquid crystal display (LCD) device comprising all the features recited in the above claims including:

(Claim 17)

- at least one liquid crystal panel having at least a first side, a second side, a third side and a fourth side
- a plurality of pixel TFTs (104) arranged in rows and columns over a
 TFT substrate (101) and arrayed in a matrix;
- a counter substrate (102) located opposite to said TFT substrate;
- a layer of a liquid crystal material (109) provided between said TFT substrate (101) and said counter substrate (102);

Sawatsubashi teaches (col. 4, line 58 - col. 5, line 60) forming <u>driving circuits</u> 112/113 for supplying <u>control signals</u>, data signal and the like (col. 5, lines 9-17). Sawatsubashi also discloses that these control circuits comprises an integrated circuit, which has a plurality of driver thin film transistors (col. 4, lines 58-60), data latch circuit 112a having shift registers or the like, data signal generating circuit 112b, circulating memory circuit 113a, and a gate signal generating circuit 113b. Hence, these control circuits obviously are the <u>control circuit chips</u>, and are the <u>control circuits for controlling said driver TFTs</u> (col. 4,

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line 58 to col. 5 lines 54). These control circuit chips are sealed in the sealing material (108), and are provided over the TFT substrate (101, see figure 4).

Therefore, Sawatsubashi LCD would obviously have:

a driver TFT (col. 4, lines 58-60) provided over said TFT substrate
 (101); and

(Claims 17, 21-25)

a control circuit (112/113) comprising a control circuit chip <u>sealed in</u> <u>said sealing material</u> (108), said control circuit provided over said
TFT substrate (see figs. 3-4) for controlling the driver TFT (col. 4,
line 58 - col. 6, line 21).

Wherein:

(Claims 21 and 23)

 a bus line (Gm/Dn) provided over said TFT substrate and connected with at least one of said pixel TFTs

(claims 22, 23 and 24)

 a sealing material (108) sealing around said liquid crystal material (109) and provided between said TFT substrate (101) and said counter substrate (102), said sealing material provided outside at least said pixel TFTs;

(Claims 24 and 25)

The TFT and counter substrates of said LCD were cut <u>outside said</u>
 <u>sealing material</u> 108 having said control circuit 112/113 sealed <u>in</u>
 <u>said sealing material</u>.

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Claims 61-64 and 69-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Inoue et al. (U.S. 5854664), McClelland et al (US4695490), Sasaki et al (US 4494825) or Kamoi et al (JP 61029821A published in 2/10/1986, submitted in Applicants' IDS paper no. 42).

APA discloses (p.2, lines 14-23, Figs 2-6) a conventional active matrix liquid crystal display comprising all the elements recited in claims 61-64 and 69-72 exclusive of:

 a non-conductive or weakly conductive material applied to the side edge of the TFT substrate (505), the side edge of the counter substrate (501), and the part of the bus line located adjacent to a side edge of said TFT substrate (504)

Wherein said non-conductive or weakly conductive material is provided on an outer side of the sealing material (502), and is not applied to one side of the TFT substrate and is not applied to one side of said counter substrate.

It is well known and conventional in the art to provide a non-conductive or weakly conductive material to cut side edges of glass substrates and cut side edge of a bus line to seal the cut side edges of a liquid crystal display device (LCD) for preventing the leakage of liquid crystal material and preventing contamination to the liquid crystal material, as taught by Inoue et al (col. 9, lines 25-31), McClelland et al. (col. 1, line 9-col. 2, line 26), and Sasaki et al. (Figure 2, col. 2, lines 35-48).

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Further more, as evidenced by Kamoi et al., who teaches (see Fig. 5b) applying a second sealing layer 6 outside of the first sealing layer 5 to seal the sides edges of the substrates to prevent any adverse influences that are exerted to the liquid crystal material and orientation films. Doing so would prevent the leakage of liquid crystal material and obviated the generation of defective orientation. As a result, the resistance to high temperature and high humidity can be improved, and the reliability of a display device is improved.

Therefore, it would have been obvious for one of ordinary skill in the art to provide a non-conductive or weakly conductive material to the cut/ side edges of the substrates and bus line (504) in the APA device for completely sealing said side edges and said bus line to prevent the leakage of the liquid crystal material and any contaminate to the liquid crystal material, and to obviate the generation of defective orientation, as taught by Inoue et al, McClelland et al, Sasaki et al. or Kamoi et al. Doing so would improve the resistance to high temperature and high humidity, and improve the reliability of APA LCD device.

Thus claims 61-64 and 69-72 would have been obvious over Applicant's admitted Prior Art (APA) in view of Inoue, McClelland, Sasaki, or Kamoi et al. as applied above.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re*

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Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 4, 6,13,14, 17, 21-25, 30, 31, 35, 36, 40-42, 44, 61-64 and 69-72 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of Koyama et al (U.S. 6246454) in view of Inoue et al (U.S. 5854664), McClelland et al (US4695490), Sasaki et al (US 4494825), or Kamoi et al. (JP 61029821A published in 2/10/1986, submitted in Applicants' IDS paper no. 42) as set forth below:

Claims 17-19 and 25 of Koyama comprise all the limitations recited in claims 4, 6,13, 14, 17, 21-25, 30, 31, 35, 36, 40-42, 44, 61-64 and 69-72 exclusive of:

- _ the sealing material seals around the liquid crystal material
- _ a non-conductive or weakly conductive material applied to the side edge of the TFT substrate, the side edge of the counter substrate and the part of the bus line located adjacent to said edge of the TFT substrate, wherein said non-conductive or weakly conductive material is provided on an outer side of a sealing material (903), and not on the fourth side of the LC panel
- _ a channel formation region provided in a semiconductor film is provided over the TFT substrate.

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Although claims 17-19 and 25 of Koyama do not explicitly include all of the above limitations, it is understood that these claims are inherently included more than what being recited since the claim language in Koyama states that "An active matrix liquid crystal display *comprising*." This language encompasses for more than what was being recited in the claims.

Moreover, any features that are not recited in a claim, but disclosed in the disclosure; it is indicated that the features are not critical and essential to the invention.

Never the less, Koyama describes in the specification and shown (e.g. figures 2 and 4) that the sealing material (903) seals <u>around</u> the liquid crystal material (904).

The limitations of the channel formation region are fully disclosed in Koyama device (col. 3, lines 45-50 and col. 5, lines 31-41).

However, the set forth above features are well known and conventional for one of ordinary skill in the art to made such features, particularly the application of the non-conductive or weakly conductive material to the sides edges of the substrates as evidenced by Inoue, McClelland, Sasaki or Kamoi et al.'s teachings as set forth above in the rejection.

Therefore, one of <u>ordinary</u> skill in the art would have realized that the sealing material (903) is sealed <u>around</u> the liquid crystal material (904), and that the channel formation region provided in the semiconductor film is provided over the TFT substrate of Koyama LCD device.

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Moreover, it would have been obvious for one of ordinary in the art to modify Koyama LCD device with a second sealing layer/nonconductive material applying to the outside of the first sealing member (903) to seal the sides edges of the substrates for preventing any adverse influences that are exerted to the liquid crystal material (904) and orientation films. Doing so would prevent the leakage of liquid crystal material and obviated the generation of defective orientation. As a result, the resistance to high temperature and high humidity can be improved, and the reliability of the Koyama display device is improved.

Also, it would have been obvious to one of ordinary skill in the art that the nonconductive or weakly conductive material is not applied to one side of the <a href="https://doi.org/10.2016/nc.2016/n

Therefore, claims 4, 6,13, 14, 17, 21-25, 30, 31, 35, 36, 40-42, 44, 61-64 and 69-72 would have been obvious over the disclosed device and claims 17-19 and 25 of Koyama, and further in view of Inoue, McClelland, Sasaki or Kamoi et al.

Response to Arguments

Applicant's arguments filed August 25, 2004 have been fully considered but they are not persuasive.

Applicants' arguments are following:

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1) Sawatsubashi fails to describe or suggest an active matrix liquid crystal display that includes a control circuit having a control circuit chip sealed in the sealing material, where the control circuit is provided over the TFT substrate for controlling the driver TFT.

- 2) Sawatsubashi discloses that driving circuits 112/113 are not sealed in the liquid crystal material 109, as recited in claim 17.
- 3) APA, Inoue, Mcclelland, Sasaki, and Kamoi, either alone or in combination, fail to describe or suggest that a nonconductive material is applied to a first side, a second side, and a third side of a liquid crystal panel and is not applied to a fourth side of the liquid crystal panel.
- 4) Koynma do not recite an active matrix liquid crystal display that includes a control circuit having a control circuit chip sealed in the sealing material, where the control circuit is provided over the TFT substrate for controlling the driver TFT. Thus, claims 17 and 21-25 are patentably distinct over the relied-upon claims of Koyama. Further, neither Inoue, McClelland, Sasaki, nor Kamoi remedies the failure of the claims of Koyama to describe or suggest a control circuit having a control circuit chip sealed in the sealing material.

Examiner's responses are following:

1) Sawatsubashi teaches (col. 4, line 58 - col. 6, line 21) that the <u>driving</u> <u>circuits</u> 112/113 or the <u>control circuit chips</u> are sealed in <u>the sealing material</u> (108), and are <u>provided over the TFT substrate</u> (101) for controlling the driver TFT (see figures 3&4).

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2) Applicant is to note that such limitation was <u>neither recited in the</u>

<u>amended claim 17 nor in the rejected claim</u>. Although the claims are interpreted
in light of the specification, limitations from the specification are not read into the
claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3) Applicant is to note that these features <u>are not recited in the rejected</u> <u>claims.</u>

However, these features constitute <u>new subject matter</u> that was not described in the original specification, and being rejected as set forth above in the rejection of this Office action.

Further more, Applicant is to note that APA has been applied as a primary reference, while Inoue, McClelland, Sasaki and Kamoi et al have been applied as secondary references and as evidences to show that it is well known in the art to apply a nonconductive or weakly conductive material to side edges of the substrates for preventing contaminate to the liquid crystal material and leakage of the liquid crystal material. Therefore, it would have been obvious to have a nonconductive or weakly conductive material apply to side edges of the substrates in APA device for preventing contaminate to the liquid crystal material and leakage of the liquid crystal material.

Particularly, the reference of Kamoi et al. has been provided in the previous and this Office actions to further show (see Fig. 5b) that the practice of applying second sealing layer/ nonconductive material or weakly conductive material to seal the sides edges of the substrates is a well known and conventional practice in the liquid crystal art for preventing contaminate to a

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liquid crystal material, and for preventing leakage of the liquid crystal material in order to prevent any adverse influences that are exerted to the liquid crystal material and other elements of the LCD.

- 4) Applicant is to note that Koyama et al recite in claim 2:
- "2. The display of claim 1, further comprising a control circuit for controlling said driver circuit made up of said driver thin film transistors, said control circuit being packed over said TFT substrate, and wherein said control circuit is sealed in a sealant material of said liquid crystal material placed over said TFT substrate."

Therefore, neither Inoue and McClelland, nor Sasaki and Kamoi are necessary to remedy the features, which already claimed by Koyama, i.e., a control circuit having a control circuit chip sealed in the sealing material.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

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the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

September 10, 2004

Julie -Huyen L. Ngo Primary Examiner Art Unit 2871